

REMARKS/ARGUMENTS

The claims have been amended to address the Examiner's concerns and to improve readability. Support for the amendments is found in the originally filed claims and specification. The amendment to specify the granular size range of 1 to 100 mm is supported in page 5, line 13. The amendment to define the chemical treatment step is supported in page 20, lines 19-24). The addition of "at least one" to modify the organic material throughout the claims is supported in page 13, lines 1-2 of the specification. The addition "at least one" to modify the alkali and/or oxidizing agents in Claim 15 is supported in page 20, lines 23-24 of the specification. Claim 31 is supported in page 16, lines 1-4. No new matter is believed to have been added.

The rejection of Claims 1-13 and 15-28 under 35 U.S.C. §112 is respectfully traversed.

The amendments to the claim distinctly point out what is being heat treated, addressing the Examiner's concern that the word "material" is indefinite. Withdrawal of the rejection is requested.

The rejection of Claims 1, 5-12, 15, 18-22 and 22-24 under 35 U.S.C. 103(a) over Zampieri (US 5,122,233) is respectfully traversed.

The present invention relates to the purification of an impure inorganic salt by a heat treatment wherein the process is improved by a chemical treatment, granulation of the inorganic salt, or the combination of chemical treatment and granulation of the inorganic salt prior to the heat treatment (see page 4, lines 9 – 22). The chemical treatment enhances the efficiency of removal of organic impurity material during heat treatment and/or act as a binder for powdered inorganic salt containing organic material to enhance the granulation (see page 20, lines 19 – 24). Granulation similarly enhances the removal of organic material

during heat treatment, and also prevents scaling problems associated with the prior art (see page 17, lines 13 – 16).

Zampieri discloses a process to treat brines, contaminated mineral salts and/or mixtures thereof comprising

- a) substantially separating organic components from the process mixture,
- b) subjecting the resulting mixture to vacuum evaporation step,
- c) thermally treating the partially dried mineral salts or mixtures thereof at an elevated temperature and thereafter obtaining pure dry mineral salts or mixtures thereof, and
- d) additional steps to recover purified water.

The vacuum evaporation in Zampieri results in salt crystals with a granular size of 0.2 to 0.3 mm (see col. 5, lines 1-3), which are substantially smaller than the granular sizes of 1 to 100 mm claimed in the present invention. Applicants note that preferred average diameter of the powder to be granulated is 10 to 500 μm (see page 12, lines 1-2 of the specification) which instantly overlaps the “granular size of 0.2 to 0.3 mm” (200 to 300 μm) of Zampieri. Examples 1-4 and Comparative Examples 1-4 clearly demonstrate that the ungranulated salt leads to insufficient purification and scaling of the heat treatment devices, in contrast to the granulated salts (see pages 26-31).

Moreover, in view of Zampieri’s disclosure stating “said sodium chloride can be mixed with other salts as well as small quantities of natural or process-caused contaminations, such as chlorides of other metals, bromides, iodides, carbonates, hydrogen carbonates, phosphates or sulphates or other salts” (see col. 6, lines 25 – 30), the Office has taken the position that the chloride of other metals, admixed with the sodium chloride, can be considered equivalent to the “chemical treatment” as claimed in the present invention.

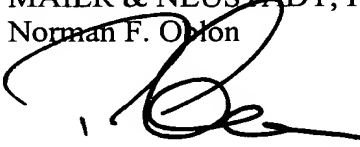
However, the Applicants have clearly defined what can constitute a chemical treatment step:

chemical treatment enhances the efficiency of the removal of the organic material during the heat treating step and/or acts as a binder for the powdered inorganic salt comprising at least one organic material during the granulating step (see Claim 1 and page 20, line 19 – page 22, line 8). Zampieri however is silent to any such beneficial effects by the incorporation of “other salts as well as small quantities of natural or process-caused contaminations” in “said sodium chloride.” In fact, Applicants for example, state that the “chlorides of other metals,” as specified in the Office Action, are some of the same salts to be purified (see Claim 9 and page 10, line 4 – page 11, 15 of the specification), and attributes no such chemical treatment effects to “halides of alkaline earth metals”. Therefore, no reasonable expectation of success exists for the other salts as well as the contaminations, as described by Zampieri, to enhance the efficiency of the removal of the organic material during the heat treating step and/or to act as a binder for the powdered inorganic salt during the granulating step. Therefore, withdrawal of the rejection of Claims 1, 5-12, 15, 18-22 and 22-24 is requested.

Applicants submit that the application is now in condition for allowance. Early notification of such allowance is earnestly solicited.

Respectfully submitted,

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